

(12) UK Patent Application (19) GB (11) 2 297 010 (13) A

(43) Date of A Publication 17.07.1996

(21) Application No 9600860.2

(22) Date of Filing 16.01.1996

(30) Priority Data:

(31) 95000562 (32) 16.01.1995 (33) KR

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(51) INT CL⁶

H04N 5/64 , H04R 5/02

(52) UK CL (Edition O)

H4J JA J30F

H4T TAFE

U1S S2284

(56) Documents Cited

WO 95/01077 A1 US 4525746 A

JAPIO Abstract Accession No.: 04933033 &

JP07225633 A (Matsushita)15/02/94

(58) Field of Search

UK CL (Edition O) H4F FJH , H4J JA JAB JBA , H4T

TAFE

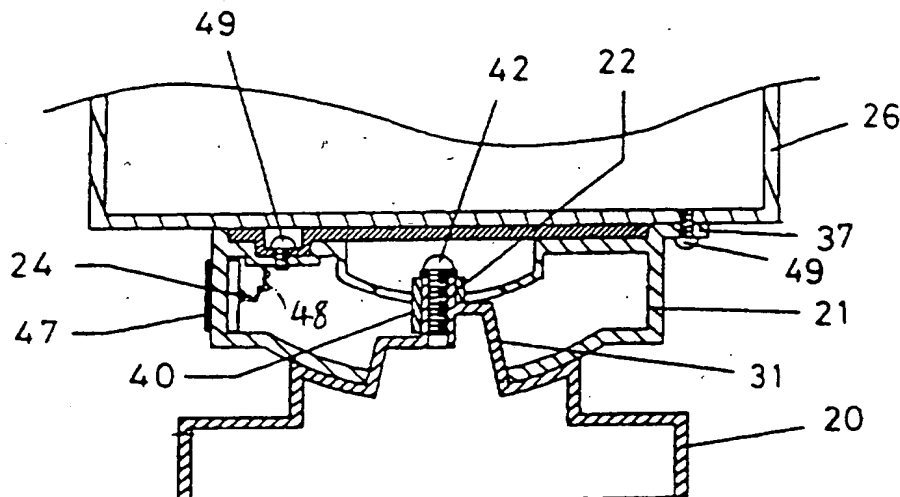
INT CL⁶ H04N 5/64 5/655 , H04R 1/02 5/00 5/02

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(54) Monitor support which contains speakers

(57). A monitor support comprises a monitor supporting part 21 which contains speakers 24 and supports the monitor 26. The monitor supporting part rests on a base 20 to which it is coupled on the base to be rotatable, a side of the monitor supporting part being formed with two speaker fixing portions (23); a connector 22 for connecting the base and the monitor supporting part so that the monitor supporting part can be rotated; and a shield (25) for sealing the upper portion of the monitor. Therefore, the howling phenomenon in the monitor is prevented since the sound pressure generated by the speakers is prevented from being transferred to the cathode-ray tube of monitor.

FIG. 3



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FIG. 1 (PRIOR ART)

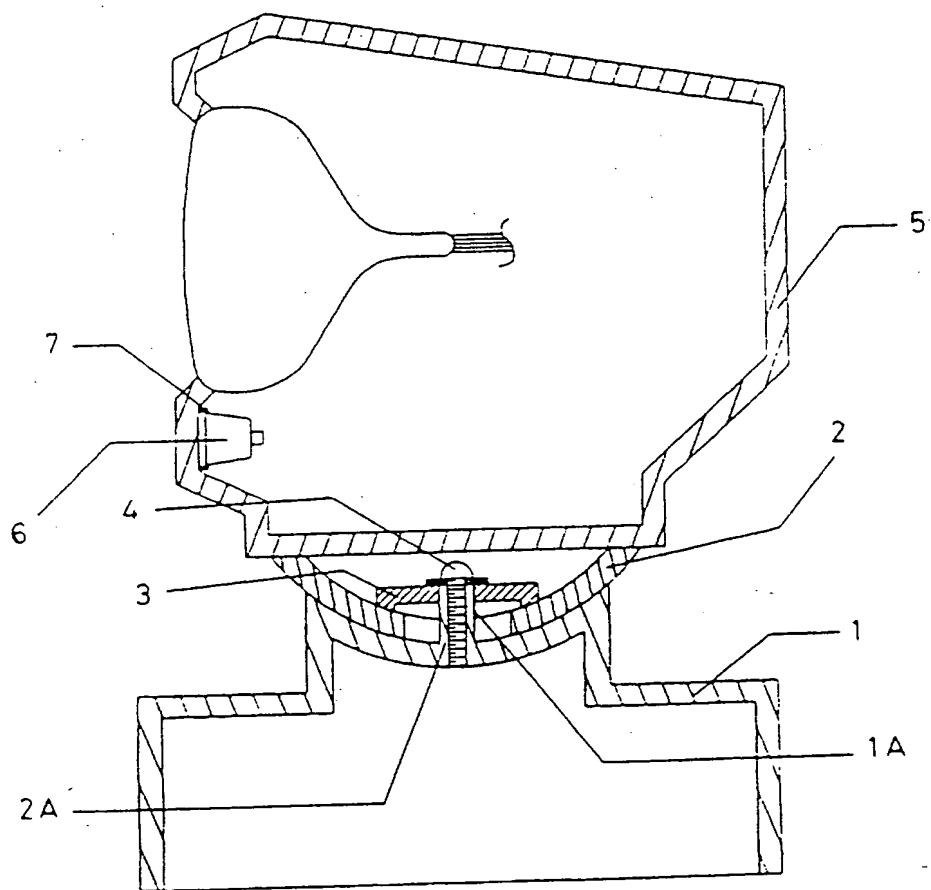


FIG. 2

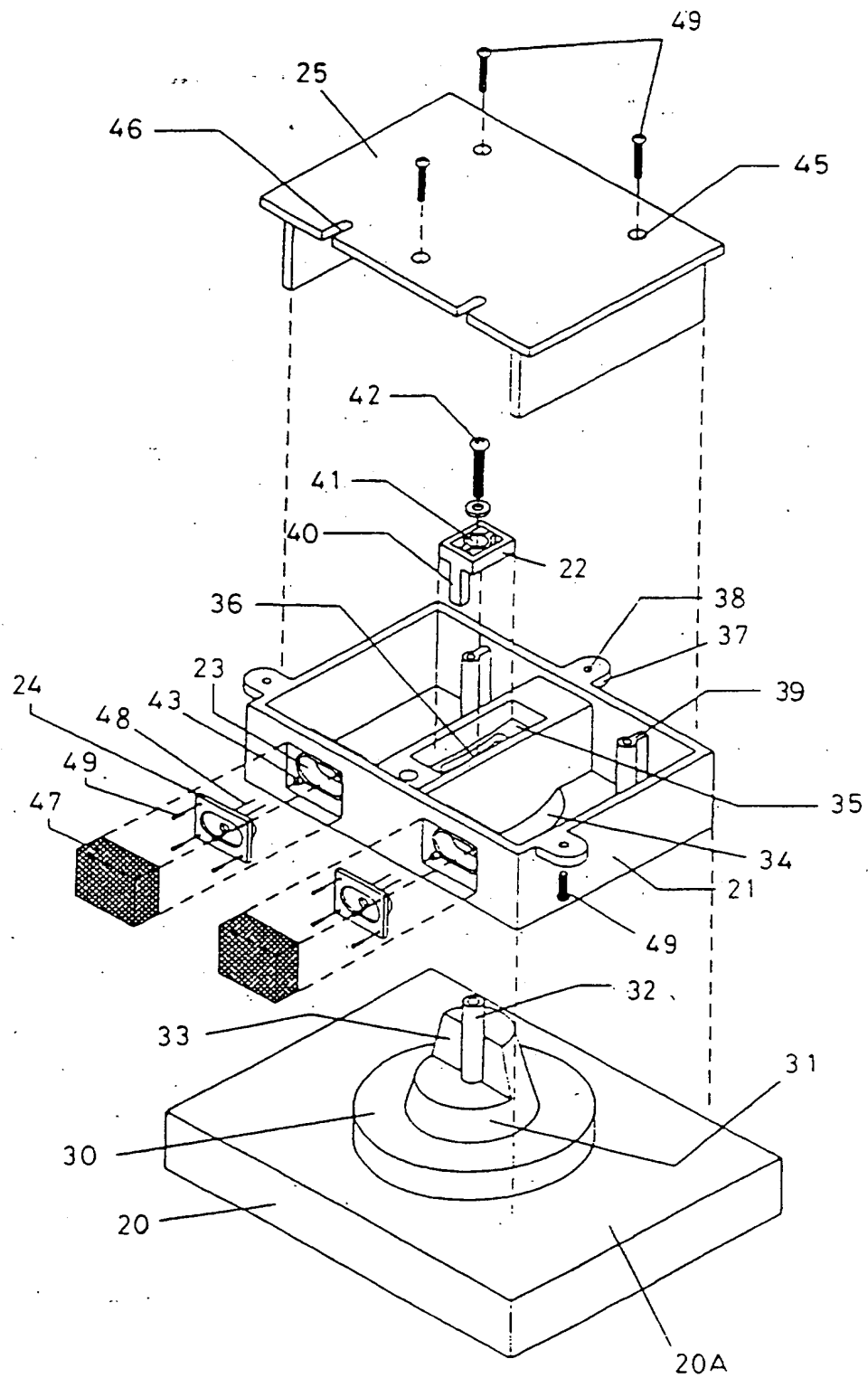


FIG. 3

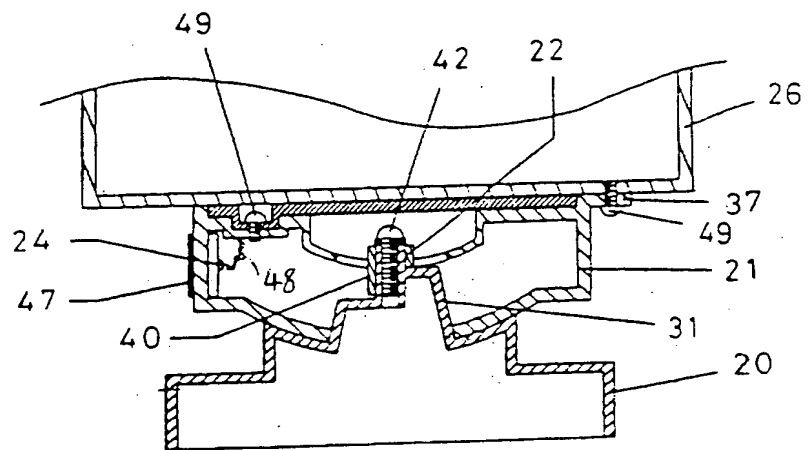
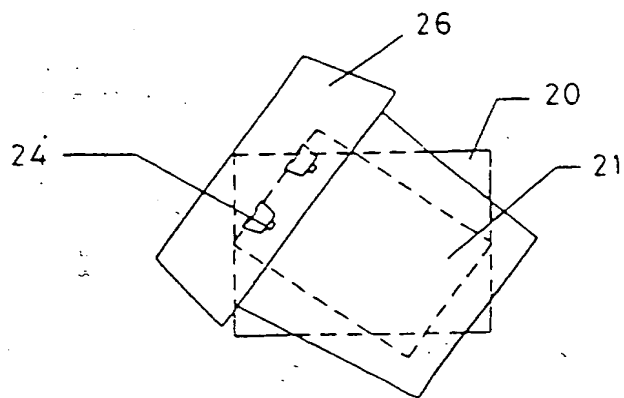


FIG. 4



5 The present invention relates to a monitor support, in particular it relates to a monitor support comprising a monitor supporting part which contains speakers and supports the monitor body to be rotatable in an upward, downward, left or right direction as a user desires.

10 Recently, various multimedia software programs are being rapidly developed and thus processing of sound signals together with video signals has become a matter of great importance. In connection with monitors, however, attention has not been
15 seriously paid to the installation of speakers for the output of sound until recently. As a result, speakers have been typically used separately, located around a monitor body, or attached to the monitor body.

20 FIG. 1 is a vertical section view illustrating a prior art monitor support, in which speakers are fixed to the monitor body. With reference to FIG. 1, the monitor support comprises a base 1; a boss 1A upwardly projected from the base 1; a monitor supporting part 2 connected on the upper surface of the base 1,
25 the part 2 supporting the monitor body 5 to be rotatable in upward, downward, left and right directions; a hole 2A formed within the monitor supporting part 2 to receive the boss 1A; a connector 3 for connecting and supporting the monitor supporting

part to be rotatable about the boss 1A; and a screw 4 inserted into the boss 1A formed on the upper surface of the base 1 and tying the base 1, the monitor supporting part 2 and the connector 3.

5 The reference numeral 6 indicates a speaker fixed to the front portion of the monitor body 5 and the reference numeral 7 indicates a screw for fixing the speaker.

The prior art monitor support constructed as explained in the above is assembled in the following manner.

10 At first, the monitor supporting part 2 is positioned on the base in such a manner that the boss 1A projected from the upper surface of the base 1 can be inserted into the hole 2A formed in the lower portion of the monitor supporting part 2.

15 Thereafter, the connector 3 is located on the inner surface of the monitor supporting part. The screw 4 is inserted into the boss 1A to connect the base 1, the monitor supporting part 2 and the connector 3. Then the monitor body 5 is coupled to the upper side of the monitor supporting part 2.

20 The monitor support assembled as explained in the above can be rotated in left and right directions within a predetermined range and can be tilted up and down within a predetermined range due to the shapes of the boss 1A and hole 2A of the monitor supporting part. In other words, a user can freely set a position of the monitor body 5 in a desired position by moving
25 the monitor body 5 in upward, downward, left and right directions, since the hole 2A formed in the monitor supporting part 2 permits moving of the boss 1A.

When a user wishes to connect the speakers to the monitor to

use them with the monitor, it is possible to use the speakers by directly fixing them to the lower portion of the front internal side of the monitor body using screws 7.

However, if the speaker 6 is installed within the monitor body 5 in the above manner, sound pressures generated from the speaker 6 will be directly transferred to the cathode-ray tube and exert a force on the shadow mask of the cathode-ray tube. As a result, the howling phenomenon i.e., a trembling of the monitor image, will be produced since the electronic projected from an electron gun mounted within the monitor is intermittently de-focused from the shadow mask.

The invention is defined in the accompanying claims.

It is an object of the invention to solve the above problems, in particular to provide a monitor support which comprises a monitor supporting part containing speakers and supporting the monitor body to be rotatable in upward, downward, left and right directions as a user desires, the monitor supporting part being able to absorb the sound pressures generated from speakers, thereby preventing the howling phenomenon on the monitor.

In order to achieve the above object, the present invention may provide a monitor support comprising a base; a monitor supporting part connected on the base to be rotatable in upward, downward, left and right directions, a side of the monitor supporting part being formed with a plurality of speaker fixing portions; a connector for connecting the base and the monitor supporting part so that the monitor supporting part can be

rotated; and a shield for sealing the upper portion of the monitor supporting part.

5 Preferably, the monitor supporting part comprises a lower slip surface formed on the lower surface of the monitor supporting part to be contacted with a slip surface formed in the base when the supporting part is connected to the base; an upper slip surface formed at a predetermined height from the lower slip surface and contacted with the top surface of a conical projection formed on the base; a slip hole formed at the center
10 of the upper slip surface, so that a boss projected from the base can be inserted through the slip hole; a plurality of shield fixing bosses formed internally of the peripheral surfaces of the monitor supporting part; and a plurality of monitor fixing lugs extended from the upper external surface of the monitor supporting
15 part.

The above objects, and other features and advantages of the present invention will become more clear from the following
20 detailed description of a preferred embodiment of the present invention with reference to the attached drawings in which:

FIG. 1 is a vertical section view illustrating a prior art monitor support;

25 FIG. 2 is a exploded perspective view showing a monitor support structure in accordance with the present invention;

FIG. 3 is a partial vertical section view showing the monitor support structure in the assembled state; and

FIG. 4 is a top plan view showing the monitor support

structure in a state that the monitor support has been rotated an angle.

5 The construction of the present invention for achieving the above objects will be explained with reference to FIGs. 2 and 3 of the attached drawings.

10 The monitor support in accordance with the present invention comprises a base 20A and a monitor supporting part 21 coupled on the base 20A to be rotatable in upward, downward, left and right directions. A side of the monitor supporting part is formed with two speaker fixing portions 23. A connector 22 connects the base and the monitor supporting part 21 so that the monitor supporting part can be rotated. A shield 25 on the supporting part 21
15 seals the upper portion of the monitor.

20 In the above construction, the base 20A comprises a base plate 20, a slip surface 30 formed on the base plate 20 in a circular shape to be contacted with a lower slip surface formed on the monitor supporting part 21, a conical projection 31 upwardly projected from the slip surface 30 to a predetermined height, a boss 32 formed at the center point of the conical projection and projected therefrom to a predetermined height; and a stopper 33 formed around half of the conical projection when the conical projection is notionally divided into two halves
25 by the central axis thereof, all of the above constituent elements being integrated as a single body.

 The stopper 33 serves to prevent the monitor supporting part 21 being rotated beyond a predetermined range.

Additionally, the monitor supporting part comprises the lower slip surface formed on the lower surface of the monitor supporting part 34 and contacted with the slip surface 30 when connected to the base 20A; an upper slip surface 35 formed at a predetermined height from the lower slip surface 34 and contacted with the top surface of the conical projection 31 when connected to the base 20A; a slip hole 36 formed at the center of the upper slip surface, so that the boss 32 projected from the base 20A can be inserted through the slip hole 36; a plurality of monitor fixing lugs 37 formed on the upper external surface of the monitor supporting part 21, each of the lugs being formed with a central fixing hole 38; and a plurality of shield fixing bosses 39 formed internally of the peripheral surfaces of the monitor supporting part 21, all of the above constituent elements being integrated as a single body.

The connector 22 consists of a stopper projection 40 projected from the bottom surface of the connector 22, a connecting hole 41 formed at the center of the connector, and a screw tying the monitor supporting part 21 and the base 20A. The speaker fixing portions consist of a plurality of bosses 43 for fixing the speakers 24 and mesh chassis heat-fusion-welding portions 44 formed around the peripheral surfaces of the boss 43.

The shield 25 comprises a plurality of connecting holes 45 formed on predetermined positions, i.e., positions corresponding to the shield fixing bosses 39 and slots 46 for receiving lead wires 28 of the speakers. The reference numeral 47 indicates mesh chassis 24 for protecting the speakers 24. The reference numeral 49 indicates screws used for securing the shield to the

monitor supporting part 21.

The monitor support in accordance of the present invention is assembled in the following manner.

5 Firstly, the monitor supporting part 21 is positioned on the base 20A so that the boss 32 formed on the base projects through the slip hole 36 formed on the central portion of the monitor supporting part 21. Thereafter, the connector 22 is positioned so that the connecting hole 41 of the connector 22 is aligned to the boss 32 of the base 20A projecting through the slip
10 hole 36.

The screw 42 is inserted through the connecting hole 41 and fastened to secure the connector 22, the monitor supporting part 21 and the base 20A with each other.

15 In the structure as assembled in the above manner, the slip surface 30 raised from the upper surface of the base 20A is contacted with the lower slip surface 34 formed on the bottom side of the monitor supporting part 21, and the upper slip surface 35 of the monitor supporting surface is contacted with the top portion of the conical projection 31 formed on the base
20 20A, whereby the monitor supporting part can be rotated on the base 20A. However, the monitor supporting part cannot be rotated beyond the predetermined extent of angle since the stopper 33 on the base 20 is engaged with the projection 40 projected from the bottom surface of the connector 22 connected to the boss 32 of
25 the base 20A at the limit of rotation in each sense.

In order to fix the speakers to speaker fixing portions formed on left and right sides of one side surface of the monitor supporting part 21 rotatably connected on the base 20A as

explained above, the bosses 43 formed on the speaker fixing portion 23 are aligned with holes of speakers, and then a screw 49 is inserted into each of holes and fastened to fix the speakers to the speaker fixing portions 23. A mesh chassis 47 covers the speakers 42 to protect them from external impacts, the chassis being welded to the heat-fusion-welding portions 44 formed on the peripheral surface of the speaker fixing portions.

When the process for fixing the speakers to the speaker fixing portions as explained in the above has been completed, the connecting holes 45 in the shield 25 and the shield fixing bosses 39 are aligned with each other and then the shield is fixed to the monitor supporting part 21 by the screws 49 inserted into each hole 45 and fastened, whereby the internal space of the monitor supporting part 24 is sealed by the shield. Thereafter, the monitor 26 is positioned on the monitor supporting part by inserting the screws 49 into the connecting holes 38 centrally formed on each of lugs 37 and fastening them, thereby completing the assembly of the monitor support with integrated speakers.

FIG. 3 is a partial section view showing the completely assembled monitor support in accordance with the present invention.

Referring to FIG. 3, since speaker lead wire receiving slots 46 are formed at one side of the shield, i.e., the side facing the speaker fixing portion 23, the lead wires 48 extended from the speakers 24 fixed to the speaker fixing portions can be extracted through the slots 46 and connected to the internal circuits of the monitor 26.

Since the speakers 24 are mounted within the monitor supporting part sealed by the shield 25 as explained in the above and the shield absorbs sound pressures generated from the speakers, the sound pressures cannot be transferred to the cathode-ray tube and the howling phenomenon is not evident in the monitor even though large volume speakers with high outputs are used. Sound output directions of the speakers 24 and the monitor 26 are always aligned with each other, since when the monitor is rotated an angle, the speakers 24 fixed to the monitor supporting part 21 follow the rotation of the monitor 26.

As explained in the above, the monitor support of the present invention can comprise speakers within the monitor supporting part which rotatably supports the monitor and also can prevent the howling phenomenon produced in the monitor since the shield prevents the sound pressure generated from the speakers from being transferred to the monitor.

CLAIMS:

1. A monitor support comprising:

a base;

a monitor supporting part connected on the base to be
5 rotatable in upward, downward, left and right directions, a side
of the monitor supporting part being formed with a plurality of
speaker fixing portions;

a connector for connecting the base and the monitor
supporting part so that the monitor supporting part can be
10 rotated; and

a shield for sealing the upper portion of the monitor
supporting part.

2. A monitor support as claimed in claim 1, wherein the base
comprises:

15 a base plate;

a slip surface formed on the base plate in a circular shape;

a conical projection upwardly projected from the slip
surface to a predetermined height;

a boss formed at the center point of the conical projection
20 and projected therefrom to a predetermined height; and

a stopper formed around half of the conical projection when
the conical projection is imaginarily divided into two halves in
reference to the central axis thereof.

3. A monitor support as claimed in claim 1, wherein the monitor
25 supporting part comprises:

a lower slip surface formed on the lower surface of the
monitor supporting part and contacted with the slip surface of
the base when the monitor supporting part is connected to the

base;

a upper slip surface formed at a predetermined height from the lower slip surface and contacted with the top surface of the conical projection;

5 a slip hole formed at the center of the upper slip surface, so that the boss projected from the base can be inserted through the slip hole;

a plurality of monitor fixing lugs formed on the upper external surface of the monitor supporting part; and

10 a plurality of shield fixing bosses formed internally of the peripheral surfaces of the monitor supporting part.

4. A monitor support as claimed in claim 1, wherein the connector comprises:

15 a stopper projection projected from the bottom surface of the connector; and

a connecting hole formed at the center of the connector for tying the monitor supporting part and the base.

5. A monitor support as claimed in claim 1, wherein the shield comprises:

20 a plurality of connecting holes formed to be connected with the shield fixing bosses, and a plurality of slots for receiving lead wires of the speakers.

25

6. A monitor support comprising:

a base;

a monitor supporting part having a lower portion connected with the base such that the supporting part is orientable relative to the base, an open upper portion and an aperture for a speaker; and

a shield closing the upper portion of the monitor supporting part.



Application No: GB 9600860.2
Claims searched: 1-6

Examiner: Stephen Brown
Date of search: 9 April 1996

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.O): H4F: FJH, H4J: JA, JAB, JBA, H4T: TAFE

Int Cl (Ed.6): H04N: 5/64, 5/655, H04R: 1/02, 5/00, 5/02

Other: Online WPI & JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	WO 95/01077 (Apple)	1 at least
X	US 4 525 746 (Grundig)	1 at least
X	JAPIO Abstract Accession No.: 04933033 & JP 07 225 633 A (Matsushita) 15/02/94 (see abstract)	1 at least

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
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